CURRENT LITERATURE
IN
AGRICULTURAL ENGINEERING

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ENGINEERING

Vol.2, No.8. WASHINGTON, D. C. March, 1933.

Agricultural Engineering.

Agricultural engineering. Monthly Bulletin of Agricultural Science and Practice. v.23, no.12. December 1932. p.479-481. Land reclamation work in Italy; Pneumatic tires for farm carts and tractors; Threshing machine trials in U.S.S.R.

Farm engineering management. By George W. Kable. Agricultural Engineering. v.14, no.2. February 1933. p.44. Fact is that engi: engineering and management on farm cannot be separated, and that engineers and farm management men are making mistake when they attempt to draw sharp lines between engineering and management phases of farming in order to perpetuate outgrown college division of subject matter.

Agriculture.

Agricultural outlook for 1933. 1933. 99p. U.S. Department of Agriculture. Miscellaneous publication no.156.

Agricultural prospects and their relation to industry. Fertilizer Review. v.7, no.4. October, November, December 1932. p.8-11,16. Agriculture has contributed more than any other industry to American life. Definite, constructive policies covering whole field of agriculture and its balance with industry in our national life, both for immediate and more distant future, must be evolved and put into effect, utilizing and promoting individualism in its proper sense but not permitting it to destroy or to be a drag upon national progress.

Our machine-tilled acres. By Walter W. Liggett. Outlook. v.161,no.2. November 1932. p.51-55. Explains breakdown of great machinery-run farms operated on theory which failed on this country, and is failing again in Russia.

Air Conditioning.

Air conditioning from the electric utilities standpoint. By D.W.McLenegan. Bulletin. Hydro-electric Power Commission of Ontario. v.20, no.1. January 1933. p.27-40. Table I: Conditions recommended for house cooling.

Air conditioning theory. By John A.Goff. Refrigerating Engineering. 25, no.1. January 1933. p.14-17,48. Paper chiefly concerned with thermodynamic properties of mixtures of air and water. Classroom methods of presentation.

Air conditioning. (Cont'd)

Comfort cooling with ice during 1932. By George Bright. Refrigerating Engineering. v. 25, no. 1. January 1933. p. 18-20, 46, 60-61.

Steam to cool as well as heat your home. Popular Mechanics Magazine. v. 59, no. 2. February 1933. p. 272-273. Vacuum system uses same plant for both.

Study of summer cooling in the research residence at the University of Illinois. By A. P. Kratz and S. Konzo. Heating, Piping and Air-Conditioning. v. 5, no. 2. February 1933. p. 115-126. Result of research conducted at University of Illinois in cooperation with the A. S. H. V. E. Research Laboratory and National Warm Air Heating Association.

Summer cooling operating results in a Detroit residence. By J. H. Walker and G. B. Helmrich. Heating, Piping and Air Conditioning. v. 5, no.2. February 1933. p. 127-132. Results obtained from study of residence cooling system under normal conditions of occupancy and with only moderate degree of cooling as compared with conditions maintained in Research residence at University of Illinois.

Associations.

Oakley announces committees for 1933. Refrigerating Engineering. v. 25, no. 2. February 1933. p. 98.

Building construction.

Aids to the construction industry. By Henry D. Hubbard. Commercial Standards Monthly. v. 9, no. 8. February 1933. p. 181-183. Manufacturing and construction economy effected by simplified practice commercial standards, and certification and labeling plan developed by the Bureau of Standards.

Coldframes

Coldframes for tomato plants. By H. A. Hunter and T. D. Holder. 1933. 7p. University of Maryland. Extension Service. Circular no. 99.

Drainage.

Drainage of agricultural lands. Washington, Government Printing Office 1932. 453 p. U.S. Bureau of the Census. Reports by states with statistics for counties. Summary for the United States, and a synopsis of drainage laws.

New method of field draining. Implement and Machinery Review. v. 58, no. 694. February 1, 1933. p. 812-813. Diagrammatic drawing showing application of Poppelsdorfer draining system. Applications of mole draining.

Electric industry.

Developments in the electrical industry during 1932. By John Liston. General Electric Review. v. 36, no. 1. January 1933. p. 7-71. Electric welding, p. 30-32. Air conditioning, p. 34-36.

Electric service, rural.

Domestic usage fixes distribution costs. By Samuel Ferguson. Electrical World. v. 101, no. 9. March 4, 1933. p. 295-296. Table 1.-Variations in distribution cost in various companies and territories. Table 11.-Variations in distribution cost according to changes in density and usage.

Reducing cost of farm lines. By Erling Ringstad. Electrical World. V.101, no. 7. February 18, 1933. p. 234-238. Effected by following methods: 1. More comprehensive engineering planning. 2. Use of higher primary voltages. 3. Increased span length. 4. Build primary lines for primary conductors only where secondaries are not required initially. 5. Eliminate excessive pole strength. 6. Reduce costly transformer accessories.

Electricity on the farm.

Agricultural electrification. By F. E. Rowland. World Power. v. 19, no. 110. February 1933. p. 97-99. Demonstration farms; farmhouse; farm and dairy; poultry farming; market gardening.

Electric soil sterilization. By A. V. Krewatch and Geo. W. Kable. 1933. 12p. mimeographed. National Rural Electric Project, College Park, Maryland. Mimeographed report no. 15.

Progress report of investigations of the various uses of electricity on the farms of Washington for the year 1932, 1933. 29p. Mimeographed. Jones' brooder; Warming water for dairy cows; Experimental apple washing machine; All-night lighting for laying hens; Studies on dairy farms; Sprinkler evaporation studies; Soil heating and electric hotbeds.

Response of greenhouse crops to electric light supplementing daylight. By Lawrenz Greene and others. 1932. 20p. Purdue University. Agricultural Experiment Station. Bulletin no. 366.

Rural electrification in Oklahoma: Study of consumption and costs. 1932. 135p. Oklahoma, Agricultural Experiment Station. Bulletin no. 207.

Erosion control.

Farms that vanish. Wallaces' Farmer. v. 58, no. 2. January 21, 1933. p. 3, 9. Checking soil erosion on the rolling land of southern Iowa.

Mattress of concrete holds river in check. Popular Mechanics Magazine. v. 59, no. 2. February, 1933. p. 184. Composed of small concrete slabs, three inches thick, four feet long and fifteen inches wide, linked together in flexible coat of concrete armor which shields soft bottom and banks from inroads of current. Replaces revetment composed of willows woven into flexible mattress.

Erosion control. (Cont'd.)

Soil erosion and tree planting. By Edmund Secrest. Ohio Agricultural Experiment Station. Bimonthly Bulletin v. 18, no. 2. March-April 1933. p. 31. Experiments in various regions of Ohio demonstrate that gullied lands can be reclaimed by plantations of forest trees. Checking of soil erosion is accomplished not so much by roots of trees as by accumulation of needle litter which falls from trees. This mats closely to ground, increasing water-absortive capacity of soil and, at same time, shedding surplus run-off of water without washing any of soil with it.

Soil erosion in the Palouse Country. By P. C. McGrew, Agricultural Engineering. v. 14, no. 2. February 1933. p. 46. Outstanding need for erosion control is development of control method which does not interfere with present system of farming land, or else changing of farm practice to have land covered with vegetation during season of most severe erosion.

Some soil factors affecting erosion. By L. D. Baver. Agricultural Engineering. v. 14, no. 2. February 1933. p. 51-52, 57. Physical properties of soils affecting erosion; Control of erosion between terraces.

Farm buildings and equipment.

Cobblestone construction for farm buildings. By R. W. Oberlin. 1932. 8p. University of Missouri. Agricultural Extension Service. Circular 297.

Hog lot equipment for Texas farms. By E. M. Regenbrecht and M.R. Bentley. 1933. 16p. Texas Agricultural and Mechanical College. Extension Service. Bulletin no. 81

Shelter house can be made cheaply. By L. J. Smith. Idaho Farmer. v.51, no.1. January 5, 1933. p. 3. Simple but sturdy construction, providing good low-cost outbuildings. Construction details.

Farm Machinery and equipment.

Beet topper saves labor. Idaho Farmer. v. 51, no.1. January 5, 1933. p. 6. Topper is made up of corrugated roller, with V-shaped knife fixed underneath roller which engages beet crown and slices it off. Roller is actuated by sprocket chains driven by rear wheels, set to revolve fast enough to draw beet leaves backward underneath roller and hold beet from slipping while crown is sliced by knives. Both roller and knives are adjustable. Following topper comes puller, which loosens beets and raises them to surface.

Concerning prices of horse-drawn equipment. By R. B. Lourie. Farm Implement News. v. 54, no. 4. February 16, 1933. p. 20-22.

Economic aspects of farm mechanization. By Arnold P. Yerkes. Farm Implement News. v. 54, no. 4. February 16, 1933. p. 18-20. Discussion of effect of labor-saving farm machines on farmers and on society in general.

Farm machinery and equipment. (Cont'd.)

Farm equipment and community prosperity. Farm Implement News. v. 54, no. 5. March 2, 1933. p. 21. Table gives distribution of farm dollar. Article based on a pamphlet issued by Research Department of National Association of Farm Equipment Manufacturers.

Farm power and what makes costs vary. Farm Journal. v. 57, no. 2. February 1933. p. 11. Factors which enter into cost are: Cost of repairs; efficiency and timeliness of operation; number of days implements are used; waste of power.

Farming to profit or subsist? Implement and Tractor Trade Journal. v.48, no. 3. February 11, 1933. p. 14. Use of cost reducing equipment will determine future status of individual farmer more than ever before.

Last call for winter service on farm machinery. Implement and Tractor Trade Journal. v. 48, no. 3. February 11, 1933. p. 28.

M-M cross-over check-row power planter. Farm Implement News. v. 54, no. 5. March 2, 1933. p. 26-27. Blends principles of rigidly attached and pull behind types. When planting, machine rests on its own wheels and is drawn by tractor through flexible hitch.

New procedure in testing farm machinery: Editorial. Implement and Machinery Review. v. 58, no. 694. February 1, 1933. p. 794. Scheme sponsored by Gr. Britain Ministry of Agriculture.

Selecting seed corn for machine harvest. By E. T. Leavitt. Implement and Tractor Trade Journal. v. 48, no. 3. February 11, 1933. p. 26.

What is new in agricultural machinery? Northwest Farm Equipment Journal. v. 47, no. 2. February 1933. p. 27-28.

Fences.

Good fences pay profits. By L. R. Neel. Southern Agriculturist. v. 68, no. 1. January 1933. p. 7, 19.

Fertilizers.

Fertilizer experiments with cotton. By E. B. Reynolds and others. 1932. 31p. Texas. Agricultural Experiment Station. Bulletin no. 469.

Fire protection.

Why burn up our farms? By Howard S. Russell. New England Homestead. v. 106, no. 1. January 7, 1933. p. 4, 11. Our fire waste record and reputation for thrift do not harmonize.

Floods and flood control.

Rio Grande rectification will control floods. Engineering News Record. v. 110, no. 7. February 16, 1933. p. 226-227. International Boundary Commission proposes a detention dam above El Paso and extensive channel rectification below El Paso to control destructive floods in El Paso-Juarez Valley. Editorial, p. 231.

Flow of water and gases.

Bernoullis' theorem, what it means. By J. C. Reed and E. E. Ambrosius. Heating, Piping and Air Conditioning. v. 5, no. 2. February 1933. p. 111-112. 1. He derived it in terms of energy at two successive sections rather than in terms of head. 2. After proving it experimentally he discovered that friction had an effect and he inserted factor in equation to take it into consideration.

Frost protection.

Controlling frost by wind machine. By Jack Klein. California Cultivator. v. 80, no. 5. February 4, 1933. p. 70-71. Tower is 35 feet high so that mechanism is all above large trees. 90 horsepower propeller of special design is driven by two model A Ford engines hooked up in tandem and operated at about 1,800 revolutions per minute. Blower is set on revolving platform which is driven by specially designed worm gear. It turns completely around once every five minutes.

Fuels.

Alcohol-gasoline blend bills introduced in Congress. National Petroleum News. v. 25, no. 7. February 15, 1933. p. 14-15. H.R. 14627; H.R. 14628.

Corn as a fuel. Grain and Feed Journals. v. 69, no. 12. December 28, 1932. p. 552. Experiment indicates that 50 bus. of ear corn will produce as much heat as ton of common Illinois coal. Pound of corn will produce about as much heat as pound of wood. Spoiled corn will produce as much heat per pound as good corn. To burn corn successfully more attention must be given to firing than when coal is used. Larger fire box is desirable. To avoid too rapid burning and overheating, drafts must be carefully controlled. Special grates and tight doors are essential to economy in use of corn.

Gas-alcohol bill in Iowa. Farm Implement News. v. 54, no. 4. February 16, 1933. p. 22. Measure would authorize state executive council to prohibit sale of motor fuel which does not contain percentage of alcohol fixed by council. Alcohol administrator would be appointed. Manufacturers would pay license fee and their profits would be limited to 10 per cent, all profits in excess of that amount to be recaptured by state.

Has science relieved our worries about surpluses? Washington Farmer. v. 68, no. 5. February 9, 1933. p. 5. Farm products, turned into alcohol, make good "mixer" for gasoline.

Motor fuel from farm products: An outline of the simplest plan for farm relief. Prairie Farmer. v. 105, no. 2. January 21, 1933. p. 7, 10. Plan is simple and practical. Easy and inexpensive to enforce. Would not require farmers to reduce production, and would free them from dependence on foreign markets.

Motor fuels in foreign countries. 1932. 35p. U.S. Bureau of Foreign and Domestic Commerce. Trade Information Bulletin no. 805.

Fuels. (Cont'd)

One view of gasoline - alcohol fuel suggestion. Farm Implement News. v. 54, no. 4. February 16, 1933. p. 28.

Heat transmission.

Investigating the conditions of heat transfer. Ice and Cold Storage. v. 36, no. 418. January 1933. p. 9-12. Fluid friction as a factor. Viscosity and fluid friction; Research in fluid friction; Application of formula to axial flow through tubes; Heat transfer in tubes; Turbulent flow through tubes; Streamline motion; Friction and heat transfer in coiled tubes; Influence of rate of heat flow; Application of formula to case of flow past obstacles; Selective absorption and radiation.

Surface absorption of heat from solar radiation. By F. G. Hechler and E. R. Queer. Refrigerating Engineering. v. 25, no. 2. February 1933. p. 86-91, 104, 115. Factors affecting surface temperatures; Transfer of radiant energy; Method of test; Results of test; Supplementary tests on glass; Effect of bright metallic surfaces; Effect of wind velocity; Heat capacity and thermal resistance.

Heating.

Chimney suction fan helps start fire in furnace. Popular Mechanics Magazine. v. 59, no. 2. February 1933. p. 193. Consists of suction fan operated by electric motor and controlled by thermostat. This arrangement creates draft in natural way, drawing dust and gases into chimney, keeping furnace itself clean and cheaper coals can be used successfully. Thermostat causes fan to stop running when predetermined temperature is reached, and to start again when temperature drops.

Coal burner permits the use of low-cost fuel. Popular Mechanics Magazine. v. 59, no. 2. February 1933. p. 177. Blower is connected with ash pit and provides necessary forced draft for burning low priced fuel.

Comparative details - Group 3. Radiator enclosures. Pencil Points. v. 13, no. 12. December 1932. p. 829-835.

Flue gas heat losses when oil is the fuel. By Newton C. Ebaugh. Power. v. 77, no. 3. March 1933. p. 128-129. Charts designed for use with oil firing; one can also be used to check accuracy of flue-gas analyses.

Heating the farm home. By Arthur H. Senner. 1933. 17p. U.S. Department of Agriculture Farmers' bulletin no. 1698.

Heating with a fan. By Professor L. J. Smith. Electricity on the Farm. v. 6, no. 2. February 1933. p. 16-17.

How to save fuel dollars. By Berton Elliot. Better Homes and Gardens. v. 11, no. 3. November, 1932. p. 17, 32-34. Discussion of warm-air furnace heating.

Heating. (Cont'd)

Modern heating methods. By Harold L. Alt. Pencil Points. v. 13, no. 12. December 1932. p. 819-828. Discussion of recent advances in the industry and their reflection in building design of today.

Oil burning equipment: Guide to the selection and use of oil burning and accessory equipment. American Architect. v. 142, no. 2610. August 1932. p. 75-88.

Hotbeds.

Paper hot houses. Market Growers Journal. v. 52, no. 3. February 1, 1933. p. 50-51. White waxed Kraft papers, 22 in. wide in 9 in. rolls. Paper supported by arches of galvanized wire set 2 feet apart, with crown 8 inches above soil and legs set about 18 inches apart. Paper laid over wire and edges covered with earth.

Houses.

Frameless steel house. Architectural Forum. v. 57, no. 4. October 1932. p. 20. Entire house is fabricated from flat rolled steel without use of any structural sections and all work is being done without any especially designed fabricating or handling equipment.

Homes and housing materials to be exhibited. Engineering News Record. v. 110, no. 9. March 2, 1933, p. 293. Century of Progress Exposition.

Housing hooey! By Eugene H. Klaber. Architectural Forum. v. 57, no.4. October 1932. p. 322-324. Critique of some current cults.

Industrial approach to housing. Architectural Forum. v. 57, no. 4. October 1932. p. 371-380. Comparison of costs and construction.

Inexpensive four room home for the small family. Popular Mechanics Magazine. v. 59, no. 2. February 1933. p. 241. Frame construction with exterior walls of log-cabin siding, common boards or shingles, and shingle roof. Joists and rafters are left exposed and interior is lined with celotex, or other insulating material.

Low cost small house. By Joseph T. Armstrong. Farm Journal. v. 57, no. 2. February 1933. p. 14.

Steel should improve existing methods of home building. By Lee H. Miller. Brick and Clay Record. v. 82, no. 2. February 1933. p. 58-59. Rather than promoting new types of construction, existing practices of proven value should be made better with steel.

Irrigation.

Alfalfa production under irrigation in Western Texas. By John J. Bayles. 1932. 28p. Texas Agricultural Experiment Station. Bulletin no. 472.

Annual forage crops under irrigation. By J. E. Norton. 1932. 17p. Montana. Agricultural Experiment Station Bulletin no. 261.

Irrigation. (Cont'd)

Big irrigation project approved. Western Farm Life. v. 35, no. 1. January 15, 1933. p. 8. Loan of $1,125,000 to Twin Lakes Reservoir and Canal Company of Crowley County, Colorado.

Directors selected by irrigation units. Idaho Farmer. v. 51, no. 1. January 5, 1933. p. 7. American Falls reservoir district no. 1, American Falls reservoir district no. 2. Burley irrigation district. Minidoka irrigation district, division no. 2.

Irrigation district making improvements. Idaho Farmer. v. 51, no. 1. January 5, 1933. p. 6. Improvement of Burley irrigation district at cost of $50,000, consisting of enlarging main canal on south side; enlargement of pump canals to capacity for carrying approximately 30 per cent more water; construction of drain canal and small pumping plant to relieve water-logged land south of Declo and to deliver additional water into second-lift canal; installation of spare transformer and electrical equipment of increased capacity at no. 3 pumping station.

Irrigation of agricultural lands. Washington, Government Printing Office, 1932. 481p. U. S. Bureau of the Census. General reports and analytical tables, reports, tables, reports by states with statistics for counties, and a summary for the United States.

Potatoes in irrigated rotations. By D. A. Savage. 1932. 36p. Montana Agricultural Experiment Station. Bulletin no. 263.

Western irrigation district successfully refinanced. By William Durbrow. Engineering News Record. v. 110, no. 10. March 9, 1933. p. 312-314. Special problems solved in effecting first major refunding program for California district all but 2 per cent of bond holders accept new 4 per cent bonds in place of 5½ per cent originals. Procedure sets precedent for future refinancing.

Land.

Advertising helps stabilize farm land values. Printers' Ink. v. 161, no. 7. November 17, 1932. p. 55-56. Intrinsic advantage of life on the farm sold to land owners, present and prospective.

Proceedings of land use symposium. Summer meeting. American Association for the Advancement of Science at Syracuse University. 1932. 57p.

Miscellaneous.

Annual report, 1932. 1933. 63p. Missouri College of Agriculture. Agricultural Extension Service. Circular 302. Agricultural Engineering. p. 37-39. Erosion control. p. 40-41.

Eighteenth annual report of Extension Division, year 1931. 1932. 112p. Oklahoma Agricultural and Mechanical College. Circular no. 295. Agricultural Engineering. p. 43-46.

Geometry of architectural drafting. By Ernest Irving Freese. Pencil Points. v. 13, no. 12. December 1932. p. 793-801. Some short cuts with triangles.

Miscellaneous. (Cont'd.)

Safety for the household. 1932. 102p. U.S. Bureau of Standards. Circular no. 397.

Simple method of drawing intricate parts in different angular positions. By Walter H. Haupt. Machinery. v. 39, no. 7. March 1933. p. 441.

Swimming pools. Portland Cement Association, 1933. 23p. Chicago.

Vibration prevention in engineering. By Arthur L. Kimball. N.Y., John Wiley & Sons, Inc., 1932. 145 p. Presents in concise form resume of various aspects of vibration prevention in engineering.

Motors.

Controlling motors for temperature control systems, compressors, oil burners, stokers. By Samuel R. Lewis. Heating, Piping and Air Conditioning. v. 5, no. 2. February 1933. p. 100-104. Concerns electric temperature control, oil-burner motor control, stoker motor control, compressor control, unit-heater fan-motor control.

Electric motors, lubrication and life extension. By James I Clower. Maintenance Engineering. v. 91, no. 2. February 1933. p. 41-44.

Electric motors and the needs of agriculture. By R. Dubois. Rural Electrification and Electro-farming. v. 8, no. 93. February 1933. p. 277-278.

Grinding and elevating grain with one-half H. P. motor. By H. J. Gallagher. Quarterly Bulletin. Michigan Agricultural Exporiment Station. v. 15, no. 3. February 1933. p. 146-151. Details of elevator construction; Recommended speeds; Home grinding; The motor.

V-belt drives for farm motors and equipment. By Hobart Beresford. 1933. 14p. Idaho. Agricultural Experiment Station. Circular no. 70.

Muscle Shoals.

Muscle Shoals again: Editorial. Fertilizer Review. v. 7, no. 4. October, November, December 1932. p. 4-5.

Pipes, and piping.

Advantages of welded piping in home heating systems. By Fred J. Maeurer. Heating and Ventilating. v. 30, no.1. January 1933. p. 35-37.

Poultry houses and equipment.

Good poultry equipment - one of the short cuts to greater poultry profits. By J. M. Moore. Quarterly Bulletin. Michigan Agricultural Experiment Station. v. 15, no. 3. February 1933. p. 197-204.

Pumps and Pumping.

Correction of troubles in centrifugal pumps. By John L. Stewart. Power. v. 77, no. 3, March 1933. p. 124-125. Troubles with centrifugal pumps can be largely avoided if attention is given to suction and discharge piping design, and to installation and operation of equipment.

Pumps and pumping. (Cont'd)

Pump terms. Southern Power Journal. v. 51, no. 3. March 1933. p.25. Suction lift; static head.

Rotary pump is speeded up by simple design. Popular Mechanics Magazine. v. 59, no. 2. February 1933. p. 225. Has only three moving parts. Efficiencies of eighty to ninety per cent have been obtained in tests. Velocity of liquid through pump is low. Power is applied to rotor which meshes with one or more sealing rotors of such form that they are propelled largely by fluid pressure, with minimum mechanical contact. Pumps are made in capacities from one half to 700 gallons per minute and for operating at pressures up to 500 pounds per square inch.

Reclamation.

Blower to burn out stumps cuts land-clearing cost. Popular Mechanics Magazine. v. 59, no. 2. February 1933. p. 265. Apparatus consists of small motor, twelve-inch blower, two air distributors and several lengths of hose and pipe. Air is forced to roots at many points.

Refrigeration.

Ice-chilled meat curing box for farm use. By T.A. H. Miller. Agricultural Engineering. v. 14, no. 2. February 1933. p. 38. Gives perspective and section views of ice-chilled meat curing box especially designed for farms of the south.

Low temperature research. Engineering. v. 135, no. 3499. February 3, 1933. p. 135.

Mixtures of air and saturated water vapor. By Claude A. Bulkeley. Refrigerating Engineering. v. 25, no. 1. January 1933. p. 27-28. Table gives properties of mixtures of air and saturated water vapor below 32° F.

Obsolescence of refrigerating machinery. By Reinhard M. Fischer. Refrigerating Engineering. v. 25, no. 2. February 1933. p. 92-92, 102-103, 112.

Refrigerating progress during 1932: Some interesting developments of the past year. Ice and Cold Storage. v. 36, no. 418. January 1933. p. 3-8. Cooling and heating control; Land installations; Transport of perishable food; Solid carbon-dioxide; Quick freezing and frozen foods.

Research.

Research at the 1932 meeting of the association of Land-Grant Colleges and Universities. Experiment Station Record. v. 68, no. 2. February 1933. p. 141-147.

Sewage and Sewage disposal.

Recent progress in sewage treatment. By George W. Fuller. Water Works and Sewage. v. 80, no. 2. February 1933. p. 37-42. Chemical precipitation; Intermediate degrees of treatment; Sludge disposal methods; Current trends in treatment processes.

Sewers.

Determining stresses in semielliptical sewers. By C. D. Williams. Engineering News Record. v. 110, no. 8. February 23, 1933. p. 242-243. Analysis of the arch ring under trench conditions of loading is facilitated by tabular method of computation.

Soils.

Bearing power of clay is determinable. By William S. Housel. Engineering News Record. v. 110, no. 8. February 23, 1933. p. 244-247. Clay has definite bearing capacity, and soil tests can be interpreted so as to make possible the design of substructures for known and limited amounts of settlement.

Petrographic methods for soil laboratories. By W. H. Fry. 1933. 96p. U. S. Department of Agriculture. Technical bulletin no. 344.

Solubility of the solid phase of soil in water. S. M. Drachev. Soil Science. v. 35, no. 1. January 1933. p. 75-83.

Specifications.

Development of various types of specifications. By F. M. Randlett. Commercial Standards Monthly. v. 9, no. 8. February 1933. p. 187-188. Specifications for materials and for equipment discussed.

Use of specifications by state agencies. By Spencer H. Reed. Commercial Standards Monthly. v. 9, no. 8. February 1933. p. 171-172. Centralized purchasing based on specifications utilized by majority of state governments.

Standardization.

What are commercial standards. By I. J. Fairchild. Commercial Standards Monthly. v. 9, no. 8. February 1933. p. 173-175. Examples are cited and distinction between these and other standards is shown.

Steam.

Method of determining stream flow and its value. By M. C. Boyer. Colorado Engineer. v. 29, no. 3. March 1933. p. 50-51.

Steam reheating - Reasons, Methods, Advantages. By R. L. Reynolds. Pt.2. Southern Power Journal. v. 51, no. 3. March 1933. p. 9-12.

Storage houses and cellars.

Handling and storing of grain, with special reference to Canadian methods. By H. H. Broughton. Engineering. v. 135, no. 3499. February 3, 1933. p. 141-145.

Temperature.

Study of temperatures in dairy stables. By W.A.R. Kelley. Agricultural Engineering. v. 14, no. 2. February 1933. p. 47-49. Purpose of tests described in this paper was to study effect of different stages of stable temperatures and of sudden changes in temperature and consequent necessity

Temperature. (Cont'd)

of insulating dairy barns as factor in temperature maintenance and maximum milk production.

Terracing.

County agent: Terracing fool. By W. H. Darrow. Farm and Ranch. v. 52, no. 1. January 1, 1933. p.3. Table gives acres terraced each year in Texas from 1916 to present.

Kansans try terracing. By John S. Glass. Agricultural Engineering. v. 14, no. 2. February 1933. p. 54. 42,000 acres terraced within state.

Terraces to conserve surface runoff. By R. E. Dickson. Agricultural Engineering. v. 14, no. 2. February 1933. p. 50. Discussion of experimental work carried on at Texas Agricultural Experiment Station.

Thermodynamics.

Practical thermodynamics and computations. By Bernard C. Oldham. Cold Storage. v. 35, no. 415. October 20, 1932. p. 222, 224.

Tires.

Air tires for farm tractors. By J. L. Puckett. Implement Record. v. 30, no. 3. March 1933, p. 10-11. 20 to 35 per cent more power; Conform to steel wheel sizes.

March of the air tires starting. Implement and Tractor Trade Journal. v. 48, no. 3. February 11, 1933. p. 18, 26. Period of development and introduction over.

Ohio tests of rubber tractor tires. By G. W. McCuen. Agricultural Engineering. v. 14, no. 2. February 1933. p. 41-44. Test A: Rolling resistance of tractor. Test B: Drawbar and fuel economy. Test C: Plowing.

Pneumatic tires for agricultural tractors. By J. W. Shields. Agricultural Engineering. v. 14, no. 2. February 1933. p. 39-40. Difficult to visualize ultimate result of general adoption of pneumatic tires on farm tractors. Savings in fuel and time and increased value of penumatic-equipped tractor to farmer should be large factor in helping to put farming back on profitable basis.

Pneumatic tires on the soil: Editorial. Agricultural Engineering. v. 14, no. 2. February 1933. p. 56. Reduces soil disturbance to minimum. Pneumatic tire is so interlocked with soil dynamics, with implement and machine design, with farm methods and management, as to emphasize once more that, despite its specialized divisions, agricultural engineering is unified and strongly coherent profession.

Tires.

Problems in design of low-pressure tires for farm tractors. By E. F. Brunner. Agricultural Engineering. v. 14, no. 2. February 1933. p. 45-46. Advantages: 1. Tractor can perform farm operations at higher speeds. 2. Permitted to run over improved roads where steel wheels are prohibited. 3. Materially lower fuel, and oil consumption. 4. More power available for useful work due to lower rolling resistance. 5. Easier on operator. 6. Makes tractor available for greater variety of farm work. 7. Can be operated on barn floors, yards, lawns, etc. 8. Seedbed packing is reduced to minimum. 9. Increased drawbar pull at higher speeds.

Prosperous farming will make an air-tired tractor market. Farm Implement News. v. 54, no. 5. March 2, 1933. p. 20-21. Tests this winter have shown where air tires are definitely superior and where they are handicapped.

Rubber-tyred tractor developments. Editorial. Implement and Machinery Review. v. 58, no. 694. February 1, 1933. p. 794-795.

Suggests tractor air tire problems. Implement Record. v. 30, no. 3. March 1933. p. 13. Extract from field report received by track-type tractor manufacturer, calling attention to certain problems observed in operation of rubber-tired-wheel tractors.

Testing air tires: Editorial. Farm Implement News. v. 54, no. 5. March 2, 1933. p. 16. Discussion of University of Nebraska tests.

Tractors.

Are tractors and machines ruining agriculture? By G. W. McCuen. Farm Implement News. v. 54, no. 4. February 16, 1933. p. 26-27. Tractor is insurance policy which gives us tangible as well as intangible protection besides paying dividend to holder of policy in form of greater return per individual worker. All national wealth is measured in terms of production. Man is paid for what he produces, little consideration is given to effort put forth.

Average use of tractors. Wallaces' Farmer. v. 58, no. 1. January 7, 1933. p. 7. Figures from Department of Agricultural Economics of Illinois College of Agriculture. Average number of hours which 65 general purpose tractors were used was found to be 514 hours per year, 464 hours of which were taken up in field work on farm, 50 hours per year were devoted to belt work on farms of owners and small amount of time was devoted to custom work.

Debate 1-plow tractor. Northwest Farm Equipment Journal. v. 47, no. 2. February 1933. p. 25-26.

Efficiency tests of tractor wheels and tracts. By W. V. Collins. Agricultural Engineering. v. 14, no. 2. February 1933. p. 35-38. Tests with tractor tracks; Test methods; Discussion of results.

Tractors. (Cont'd)

Tractors and horses in the U.S.S.R. Monthly Bulletin of Agricultural Science and Practice. v. 23, no. 12. December 1932. p. 483-484. Government Decree states that tractor must not replace horse but must rather supplement horse power.

Trend toward tractors will continue. By E. T. Leavitt. Farm Implement News. v. 54, no. 5. March 2, 1933. p. 28. Conditions which have rendered it necessary for farmers to make best possible use of power and equipment already available, led many people erroneously to believe that trend toward greater use of power equipment had been checked. Greatest engineering skill available today is largely working for improvement of machines concerned with power farming. For this reason it is impossible to forsee progress possible with power units designed for every size of farm, crops and condition of soil. Progressive farmer will not deliberately turn his back to progress but will look ahead to choose that form of power which will be most likely in future to solve his problem of low cost production.

Turbines.

Characteristic features of present water turbines. By Arnold Pfau. Journal of the Western Society of Engineers. v. 37, no. 6. December 1932. p. 323-332. Selection of right type of hydraulic turbine requires full knowledge of several very important factors which are brought out. Tells requirements for each type and explains propeller turbine in full.

2 methods of measuring water to hydraulic turbines. Power. v. 77, no.3. March 1933. p. 126-127. Recent applications of piezometer orifices on stay vanes and in scroll cases have given satisfactory results. These methods are particularly useful in medium and low-head plants.

Waterpower.

Developed waterpower now one-fifth of resources. Electrical World. v.101, no. 7. February 18, 1933. p. 214. Total capacity of water-power plants in U.S. of January 1, 1933 was 15,817,941 hp. Figures from U.S. Geological Survey.

Water purification.

Recent court decisions on the subject of when stream pollution is legal. By Leo T. Parker. Municipal Sanitation. v. 4, no. 3. March 1933. p. 92-93, 97.

Water supply.

Fountain for travelers on West Virginia roads. By L. P. Street. Engineering News Record. v. 110, no. 10. March 9, 1933. p. 314-315. Tested mountain springs are piped to pleasingly designed bubbling fountains and watering troughs located at roadsides.

Running water for country homes. By Robert Gregg. Popular Mechanics Magazine. v. 59, no. 2. February 1933. p. 327-330.